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## KEYBOARD FOR DATA ENTRY ON CONTROL PURPOSES

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200/DIG. 2; 400/492 [58] Field of Search ............ 340/365 S, 365 R, 365 L, 340/365 C, ; 400/489, 492, 479, 479.1, 479.2; 200/332, 335, 52 R, DIG. 2, 277; 341/22, 20,

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### [56] References Cited

7/1978

2376480

62-19923 1/1987

### U.S. PATENT DOCUMENTS

2,547,765	4/1951	Lund 200/335
3,141,075	7/1964	Brevick et al 200/332
3,198,925	8/1965	Starrantino 200/332
3,945,482	3/1976	Einbinder .
4,081,068	3/1978	Zapp 340/365 L
4,244,659	1/1981	Malt .
4,310,254	1/1982	D'Angiollo et al
4,597,681	7/1986	Hodges 400/492
FOREIGN PATENT DOCUMENTS		
8300308	2/1983	European Pat. Off 400/682

# OTHER PUBLICATIONS

2133745 8/1984 United Kingdom ...... 400/489

France.

Japan

Cognitive Aspects of Skilled Typewriting, William E. Cooper, 1983 Ed., Chapter 13, Certain Problems Associated with the Design of Input Keyboards for Japanese Writing, by Hisao Yamada, pp. 305-407 May 1983. Journal of Information Processing, vol. 2, No. 4, Feb. 1980, A Historical Study of Typewriters and Type Methods: from the Position of Planning Japanese Writing, by Hisao Yamada, pp. 175-202.

Scientific American, Feb. 1984, The Skill of Typing, by Timothy A. Salthouse, pp. 128-135.

Psychology Today, Mar. 1984, The Typist's Touch, by Donald R. Gentner and Donald A. Norman, pp. 66-72. "Speed Keyboard for Data Processor", Hymes et al., IBM Tech. Discl. Bul.; pp. 838; 1980.

"Smart Key" IBM Tech. Discl. Bul.; pp. 1859; Oct

"Semi-Capacitive Keyboard" by Kowalski; Xerox Disclosure Journal; pp. 85, vol. 1, No. 2, Feb. 1976.

"Digital X Typewritter Keyboard" by D. L. Conway; IBM Tech. Disclosure Bulletin; vol. 18, No. 12, May

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#### **ABSTRACT** [57]

A keyboard for data entry or control purposes includes a plurality of sets of two or more keys arranged for receving the tips of the finger of a hand of an operator, the keys of each set have such a small superficial touch area and are clustered together so as to be substantially comprehended and selectively operated by a single finger tip of an operator. Additional keys having their superficial touch area spaced from but sufficiently close to the superficial touch area of a set of the sets may be provided to be conveniently operable by a finger tip of user operating the keys of the adjacent set. In a preferred embodiment of the invention, the superficial touch area of each key takes the form of a roller and each set of keys is made up of two keys. In some embodiments, the relative spacing between sets of keys or between keys may be adjustable.

## 22 Claims, 5 Drawing Sheets



